NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

PASTURE AND HAY PLANTING

(Acre)

CODE 512

DEFINITION

Establishing native or introduced forage species

PURPOSES

This practice may be applied as part of a conservation management system to accomplish one or more of the following purposes.

- Establish adapted and compatible species, varieties or cultivars
- Improve or maintain livestock nutrition and/or health
- Extend the length of the grazing season
- Provide emergency forage production
- Reduce soil erosion by wind and/or water

CONDITIONS WHERE PRACTICE APPLIES

This practice may be applied on cropland, hayland, pastureland and other agricultural lands where forage production is feasible and desired.

CRITERIA

General Criteria Applicable to All Purposes Stated Above.

Plant species and cultivars shall be selected based upon the following factors.

1. Climatic conditions, such as annual rainfall, seasonal rainfall patterns, growing season length, humidity levels, temperature extremes and USDA Plant Hardiness Zones.
2. Soil condition and position attributes such as pH, available water holding capacity, aspect, drainage class, inherent fertility, salinity and alkalinity, flooding and ponding and concentrations of toxic elements that may be present in the soil such as selenium and aluminum.
3. Plant resistance to disease and insects common to the site or location.
4. Plant compatibility with other forage species and their selected cultivar(s) in rate of establishment, maturity and growth habit when seeded together as a forage mixture.

Specified seeding/plant material rates, methods of planting and dates of planting shall be consistent with Colorado NRCS guidance.

Seeding rates will be calculated on a pure live seed (PLS) basis.

Seedbeds shall be firm and weed-free to ensure seed will contact soil moisture uniformly, facilitate seedling emergence and provide a medium that will not restrict or allow roots to become dry.

All seed and planting materials shall be labeled and meet Colorado Seed Law and Federal Seed Act requirements.

Legume seed shall be inoculated with appropriate viable Rhizobium before planting.

If application of this practice will affect cultural resources (archaeological, historic, historic landscape or traditional cultural properties), follow NRCS national policy and Colorado operating procedures for considering cultural resources.

Additional Criteria for Improving or Maintaining Livestock Nutrition and/or Health.

Forage species must be capable of meeting the desired level of nutrition for the kind and class of livestock to be fed.

Additional Criteria for Extending the Grazing Season.

Forage species selected for establishment shall fulfill a recognized dietary deficiency within the year long forage management program.

Additional Criteria for Providing Emergency Forage Production.

Select plants that will produce forage for use during periods when other on-farm/ranch forage is unavailable to meet livestock needs.

Additional Criteria for Reducing Erosion by Wind and/or Water.

Plants shall have the ability to provide adequate ground cover, canopy cover, root mass and vegetal retardance to wind forces and water flows either alone, or in combination with other forage species when site conditions require erosion protection.

CONSIDERATIONS

Cover Crop, Prescribed Burning, Prescribed Grazing, Brush Management, Grazing Land Mechanical Treatment and Forage Harvest Management practices may be used in combination with Pasture and Hay Planting.

Enhance food and cover values for wildlife by using an approved habitat evaluation procedure to select plant species and provide for other habitat requirements necessary to achieve the objective.

Forage species planted in a mixture should exhibit similar palatability to one another to avoid spot or selective grazing.

PLANS AND SPECIFICATIONS

Specifications for the establishment of pasture and hay plantings shall be prepared for each site or management unit according to the Criteria, Considerations and Operations and Maintenance sections of this standard. Specifications shall describe the requirements for applying this practice to meet the intended purpose.

Specifications shall be recorded on specification sheets, job sheets, in narrative statements in the conservation plan, or other acceptable documentation.

Specifications shall address the following elements, as applicable, to meet the intended purpose.

Seedbed Preparation

Irrigated Sites – Seedbed should be firm and smooth and free of annual and perennial noxious weeds and other plants that may interfere with stand establishment.

Plant seed on clean ground, weed free stubble or herbicide treated sod. Stubble and herbicide treated sod are ideal seedbeds for slopes where erosion from irrigation may be a problem. Companion crops may be used if adequate water is available and management favors stand establishment rather than companion crop harvest.

Nonirrigated Sites – Seedbeds are required to have protection against water and wind erosion by one of the following methods or conditions.

a. A preparatory dead litter stubble cover of sorghum or sudangrass will be left standing to provide protection from blowing. If more growth is produced than desirable or if the cover crop will produce mature seed, the cover crop will be clipped to a 12-15 inch height and removed from the field, unless restricted by program requirements.

b. Seeding into existing sorghum or small grain cover harvested the previous season may be used in place of a cover crop provided the stubble height is maintained at 12 inches or more and weeds and volunteer grain are controlled. If weeds and volunteer are not controlled between harvest and grass seeding, tillage and cover crop planting will be required before grass seeding. Cereal rye shall not be used for existing cover.

Seeding

Use planting equipment capable of placing seed ¼ to ¾ inches deep at the proper rate for the selected species.

Fertilizer Application

Fertilizer applications shall be based on soil test recommendations. If phosphorus is required, apply and incorporate before seeding. Delay nitrogen applications until stand is established.

Fertilizer applications made without a soil test recommendation may cause excess weed growth that will inhibit stand establishment.

Species Selection

Select species for Pasture and Hay Planting according to Colorado Plant Materials Technical Note No. 59, Table 6, 2002.

Seeding Rates
Calculate grass and legume seeding rates according to Colorado Plant Materials Technical Note No. 59, Table 5, 2002. Calculate cover crop seeding rates according to the Colorado Cover Crop Specification Guide, Code 340, 2003.

Planting Dates
Plant pasture and hay species within the seeding periods specified in Colorado Plant Materials Technical Note No. 59, Table 2, 2002. Up to 10 days flexibility from the specified periods may be allowed for adapting to local soil moisture conditions.

Seed Analysis
All seed to be used, either purchased or grown for personal use, will meet the following minimum standards if cost share is requested.

Seed labeling, quality and testing will be in accordance with the Colorado Seed Law. This requires that seed be tested according to "Rules for Seed Testing" Association of Seed Analysts (AOSA) and Rules and Regulations under the Federal Seed Act.

Purity and germination tests for all lots of seed shall be less than one year old.

Seed Source
Use adapted improved varieties and cultivars in the following order of preference, when available.

1. Certified named varieties
2. Named varieties
3. Common seed

Certified named varieties are required for all NRCS cost shared programs. Request exemptions from the State Resource Conservationist if Certified seed is not available. If both Certified named varieties and Named varieties are not available, Common seed originating from the same general locality as the planting site may be used.

Management for Establishment
Control weeds and seed production from volunteer small grain and cover crops with mowing or herbicide applications, as appropriate. Harvest or grazing during initial establishment is limited. Refer to the Colorado Forage Harvest Management Conservation Practice Standard, Code 511, 2003, for minimum heights.

OPERATION AND MAINTENANCE

Growth of seedlings or sprigs shall be monitored for water stress. Water stress may require reducing weeds, early harvest of any companion crops, irrigating when possible, or replanting failed stands, depending on the severity of drought.

Invasion by undesirable plants shall be controlled by cutting, using a selective herbicide, or by grazing management by manipulating livestock stocking rates, density, and duration of stay.

Insects and diseases shall be controlled when an infestation threatens stand survival.

REFERENCES

Colorado Field Office Technical Guide, Section I. Plant Materials Technical Note No. 59. 2002. Plant Suitability and Seeding Rates for Conservation Plantings in Colorado. USDA, Natural Resources Conservation Service. Lakewood, CO.

Colorado Field Office Technical Guide, Section IV. Cover Crop Conservation Practice Standard. Code 340. 2003. USDA, Natural Resources Conservation Service. Lakewood, CO.

Colorado Field Office Technical Guide, Section IV. Forage Harvest Management Conservation Practice Standard. Code 511. 2003. USDA, Natural Resources Conservation Service. Lakewood, CO.